

Amendments to the Drawings:

The attached sheets of drawings include changes to Fig. 1 and Fig. 2. These sheets replace the original page 1 and page 2 sheets of Fig. 1 and Fig. 2. In Fig. 1 and Fig. 2, a dashed line indicating hydraulic system 11 has been added along with a lead line connecting control system 27 to the hydraulic system 11.

Attachment: Replacement Sheet 1 of 2; and
Replacement Sheet 2 of 2
Annotated Sheets Showing Changes

REMARKS/ARGUMENTS

Claims 1-5 and 7-11 are pending in the application. Claim 1 has been amended. New claims 13-18 have been added. The amendment is fully supported by the original disclosure. No new matter has been introduced. Reconsideration and allowance of claims 1-5, 7-11, and 13-18 in view of the following remarks is respectfully requested.

The objection to the drawings:

The Examiner has objected to the drawings under 37 C.F.R. § 1.83(a) for not showing every feature of the invention specified in the claims. Specifically, the Examiner objects to the Figures not showing "the control system controlling the proportional valve based on pressure in the system lines (e.g. claim 1, lines 11-14) must be shown or the feature(s) canceled from the claim(s)."

In response, Applicant has amended the paragraph at page 8, lines 8-21, of the specification to enumerate hydraulic system as "hydraulic system 11 (as shown in Figs. 1 and 2)". And, to further clarify that the control system detects operational parameters including the closed loop, where the closed loop is now recited as "the closed loop hydraulic line 18 with alternating high or low pressure side A and B".

Additionally, Figs. 1 and 2 have been amended to define which portion of the system 10 constitutes the hydraulic system 11. Further, as the specification (at page 8, lines 8-21) describes the control system as detecting the operational parameters of the hydraulic system, a lead line has been drawn from control system 27 to the hydraulic system 11 in both Figs. 1 and 2.

Lastly, Applicant submits no new matter has been introduced. Specifically, the paragraph at page 8, lines 8-21, specifies that the control system "detect operational parameters of the hydraulic system", that the control system will actuate the valve according to the needs of the system based on "these operational parameter readings", and that these parameters include "the pressure in the closed loop".

The rejection of claims 1-5 under 35 U.S.C. § 112:

The Examiner has rejected claims 1-5 under 35 U.S.C. § 112, second paragraph, as being indefinite. Specifically, the Examiner objects to the language in claim 1 for citing "activating only the control valve which is connected to the low pressure side" as confusing, as only one "control valve" is recited in the claim.

In response, Applicant has amended independent claim 1 to delete "only", and to replace "which is connected to" with "when the at least one of the system pressure lines is". As amended, this portion of claim 1 now reads "a control means connected to the control valve in order to provide a loop flushing flow by activating the control valve when the at least one of the system pressure lines is a low pressure side of the loop flushing circuit." Applicant submits that, as amended, independent claim 1 is now clear and definite under 35 U.S.C. § 112, second paragraph.

New claims 13-18:

Applicant has added new claims 13-18. Independent claim 13 recites "a control means connected to the first and second control valves in order to provide loop flushing flow by activating only the control valve which is connected to a low

pressure side of the loop flushing circuit" where the first control valve is located in the first system pressure line and the second control valve is located in the second system pressure line.

No such structure can be found in either of the cited references Meier (U.S. Pat. No. 6,430,923) or Gollner (U.S. Pat. No. 6,339,928). Specifically, Gollner has a single embodiment with a single flush valve 21 connected to a slide valve 16 where the slide valve 16 is connected between lines A and B. Accordingly, Gollner fails to teach or suggest having both a first control valve connected to a first system pressure line and a second control valve connected to a second system pressure line. Likewise, Meier discloses only a single flushing valve 42 connected to "only one of the system pressure lines A or B". See column 4 at lines 59-63, of Meier. Accordingly, Meier does not have a second control valve in the second system pressure line, as recited in independent claim 13. Accordingly, Applicant respectfully submits that independent claim 13 is novel and not obvious in view of Meier or Gollner.

Likewise, dependent claims 14-18 are also novel and not obvious due at least to their dependence on independent claim 13.

The rejection of claims 1-5 and 7-11 under 35 U.S.C. § 103:

The Examiner has rejected claims 1-5 and 7-11 under 35 U.S.C. § 103. Specifically, the Examiner has objected to claims 7-10 as being unpatentable over Gollner (U.S. Pat. No. 6,339,928) in view of Fluid Power Design Handbook, claims 7-9 and 11 as being unpatentable over Gollner in view of Fluid Power Design Handbook, and claims 1-4 as being unpatentable over Meier in view of Gollner and Fluid Power Design Handbook.

All of the Examiner's § 103 rejections are based on a combination of Gollner in view of Fluid Power Design Handbook.

An obviousness analysis begins in the text of § 103 with the phrase "at the time the invention was made." For it is this phrase that guards against entry into the "tempting but forbidden zone of hindsight when analyzing the patentability of claims pursuant to that section. See Loctite Corp. v. Ultraseal Ltd., 781 F.2d 861, 873, 228 U.S.P.Q. 90, 98 (Fed. Cir. 1985), overruled on other grounds by Nobelpharma AB v. Implant Innovations, Inc., 141 F.3d 1059, 46 U.S.P.Q.2d 1097 (Fed. Cir. 1998). Measuring a claimed invention against the standard established requires the often difficult but critical step of casting the mind back to the time of the invention, to consider the thinking of one of ordinary skill in the art, guided only by the prior art references and then-accepted wisdom in the field. See, e.g. W.L. Gore & Assoc., Inc. v. Garlock, Inc., 721 F.2d 1540, 1553, 220 U.S.P.Q. 303, 313 (Fed. Cir. 1983). Close adherence to this methodology is especially important in the case of less technologically complex inventions, where the very ease with which the invention can be understood may prompt one "to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against the teacher." Id.

6 The best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references. See, e.g., C.R. Bard, Inc. v. M3 Sys., Inc., 157 F.3d 1340, 1352, 48 U.S.P.Q.2d 1225, 1232 (Fed. Cir. 1998) (describing "teaching or suggestion or motivation [to combine] as an essential evidentiary component of an obviousness holding") combining prior art references

without evidence of such a suggestion, teaching, or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability - the essence of hindsight. See, e.g. Interconnect Planning Corp. v Feil, 774 F.2d 1132, 1138, 277 U.S.P.Q. 543, 547 (Fed. Cir. 1985) ("The invention must be viewed not with the blueprint drawn by the inventor, but in the state of the art that existed at the time.") In this case, the Examiner has fallen into the hindsight trap.

Evidence of a suggestion, teaching or motivation to combine may flow from the prior art references themselves, the knowledge of one of ordinary skill in the art, or, in some cases, from the nature of the problem solved, although the suggestion more often comes from the teachings of the pertinent references. Rouffet, 149 F.3d at 1355. The range of sources available does not diminish the requirement for actual evidence. That showing must be clear and particular. See, e.g., C.R. Bard, 157 F.3d at 1352. Broad conclusory statements regarding the teaching of multiple references, standing alone, are not evidence. e.g., McElmurry v. Arkansas Power & Light Co., 995 F.2d 1576, 1578, 27 U.S.P.Q.2d 1129, 1131 (Fed. Cir. 1993) ("Mere denials and conclusory statement, however, are not sufficient to establish a genuine issue of material fact.").

In combining Gollner with Fluid Power Design Handbook, the Examiner notes that Gollner discloses Item 21 as a flush valve (electrical 2-position valve for loop flushing). See column 3, line 13. The Examiner notes that the electrical 2-position valve 21 is not disclosed as an electrically proportional control valve, as claimed by Applicant. The Examiner attempts to cure Gollner with the teaching of the Fluid Power Design Handbook. To justify this combination, the Examiner asserts

that the Fluid Power Design Handbook teaches "that a modulated electrical flow control valve ... and a proportional spool valve ... are functionally equivalent." Applicant cannot agree. First, nowhere does the Examiner particularly identify any suggestion, teaching, or motivation to combine the prior art references such as the level of ordinary skill in the art, the nature of the problem to be solved, or any other fact or finding that might serve to support a proper obviousness analysis.

To the contrary, the Examiner's decision is based on a discussion of the ways that the multiple prior art references can be combined on the claimed invention. Yet this reference by reference, limitation by limitation analysis fails to demonstrate how one of ordinary skill in the art would be motivated to modify the Gollner reference based on the information in Fluid Power Design Handbook. For example, the Examiner has not explained why, if both 2-positioned valves and proportional solenoid valves were known in the art at the time of the Gollner reference, that Gollner himself did not use an electrically proportional control valve within the flushing circuit when this option was readily available. In contrast, Gollner, as a person of ordinary skill in the art, chose to use a flushing valve that provided non-proportional operation. In this respect, Gollner itself teaches away from the proposed combination. This is a point that the Examiner did not address in the Final Office Action. See Pro-Mold & Tool, 75 F.3d 1568, 1573, 37 U.S.P.Q.2d. 1626, 1630 (Fed. Cir. 1996).

A factor cutting against a finding of motivation to combine or modify the prior art is when the prior art teaches away from the claimed combination. A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the

reference, or would be led in a direction divergent from the path the Applicant took. In re Gurley, 27 F.3d 551, 31 U.S.P.Q.2d 1130, 1131 (Fed. Cir. 1994). Here, because Gollner teaches a non-proportional flushing valve, one skilled in the art upon reading Gollner would have been led in a path divergent from that taken by the Applicant. Accordingly, because the Examiner has not particularly identified any suggestion, teaching, or motivation to combine the prior art references, in addition to the disclosure of Gollner that teaches away from the proposed combination, the Examiner's conclusion of obviousness, as a matter of law, cannot stand.

Additionally, Fluid Power Design Handbook itself teaches away from the propose combination. While the Examiner maintains that the Fluid Power Design Handbook teaches that a modulated electrical flow control valve and a proportional spool valve are functionally equivalent, Applicant cannot agree. Specifically, Fluid Power Design Handbook notes that the "proportional solenoid valve" is in a separate "category" from modulated electrical flow control valves. See page 82, paragraph 5. Additionally, Fluid Power Design Handbook notes that such "proportional solenoid valves" are "complex" while modulated electrical flow control valves operate to modulate flow by "rapidly opening and closing the valve passage". See page 82, paragraphs 3 and 5. Additionally, in the discussion of modulated on-off valves, at page 83, paragraph 3 - page 84, paragraph 1, Fluid Power Design Handbook does not mention anywhere that such a modulated on-off valve could desirably be replaced with a proportional solenoid valve. In contrast, in discussing the "proportional solenoid valves" at page 84, paragraph 2 - page 87, paragraph 10, Fluid Power Design Handbook extensively discusses the interchangeability and reason for

selecting between proportional solenoid valves and a fourth category of valves of a "servovalve". Nowhere in the discussion of "proportional solenoid valves" does Fluid Power Design Handbook teach or suggest that modulated on-off valves are understood in the art to be substantially equivalent to "proportional solenoid valves", and in fact fails to mention the modulated on-off valves anywhere in the detailed discussion of the "proportional solenoid valves" beginning at page 84. Accordingly, as Fluid Power Design Handbook discusses the interchangeability of "proportional solenoid valves" with "servovalves" but fails to discuss any interchangeability between "proportional solenoid valves" with "modulated on-off valves", Applicant submits that the Fluid Power Design Handbook teaches away from substituting a "proportional solenoid valve" for the Item 21 (electrical two-position valve) of Gollner. As the Fluid Power Design Handbook teaches away from the proposed modification of Gollner, the Examiner's conclusion of obviousness as a matter of law, cannot stand.

Applicant notes that the "electrical proportional flow control valve of claim 7 is structurally distinct from the Item 21 (electrical two-position valve) of Gollner, and that this structural distinction has a functional advantage. Specifically, the electrically proportional flow control valve of Applicant's claim 7 has the functional advantage of regulating the flushing flow of the closed loop circuit by selecting the desired loop flushing flow. Conversely, the two-position valve 21 of Gollner only permits an "on" or an "off" flow condition, and does not provide for proportionally regulating the flushing flow of the closed loop circuit. Because a non-proportional electric valve is used in Gollner, an operator is unable to intelligently select the loop flushing

flow and thus the system within the Gollner reference will perform inefficiently compared to the present invention. See page 3, lines 13-24 of the present invention.

Regarding claims 1-5, the combination of Meier in view of Gollner in view of Fluid Power Design Handbook, fails for at least the reasons discussed above of Fluid Power Design Handbook failing to cure Gollner of its lack of an "electrically proportional control valve". Further, Meier does not cure Gollner of this deficiency, as like Gollner, Meier teaches the use of a single-nonproportional electrical valve to control loop flushing flow. See Applicant's specification at page 3, lines 15-17. "Because a non-proportional electrical valve is used, an operator is unable to intelligently select the loop flushing flow. Because the '923 device is unable to intelligently select the loop flushing flow, under certain conditions the closed loop will perform inefficiently compared to the present invention. Therefore, the present invention is considered an improvement over the '923 device." See page 3, lines 17-23, of Applicant's specification. Thus, because Meier and Fluid Power Design Handbook fail to cure Meier of failing to teach an electrically proportional control valve, the obviousness rejection cannot stand.

Likewise, dependent claims 2-5 and 8-11 are also novel and not obvious due at least to their dependence on independent claims 1 and 7, respectively.

Conclusion:

In view of the above amendments and remarks, Applicant respectfully request allowance of claims 1-5, 7-11, and 13-18.

Any fees or extensions of time believed to be due in connection with this amendment are enclosed with this amendment;

however, consider this a request for any extension inadvertently omitted, and charge any additional fees to Deposit Account No. 50-2098.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Timothy J. Zarley', with a stylized flourish at the end.

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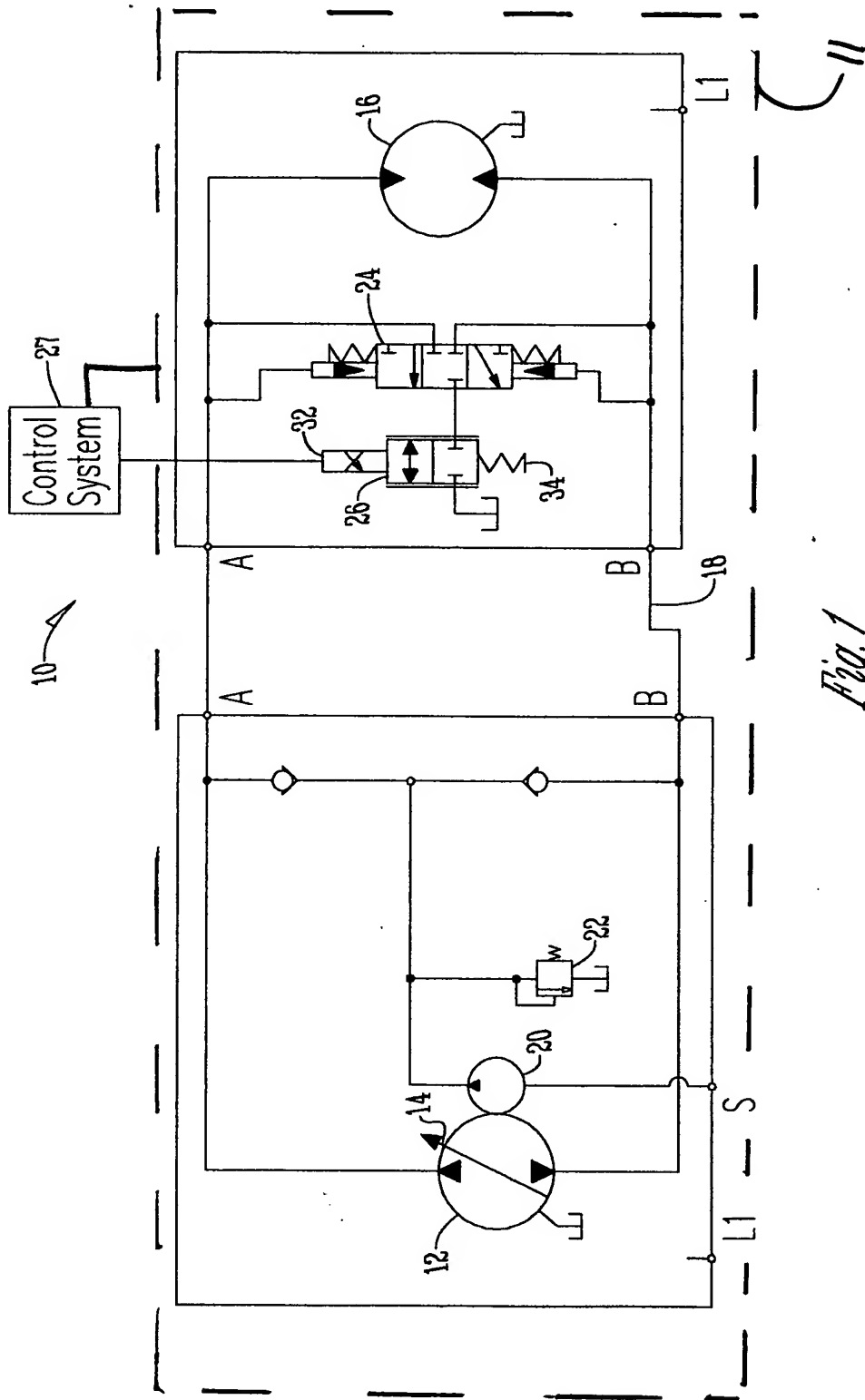


Fig. 1



